1 Purpose

To have students learn and understand the basics of computer viruses and how to handle a computer that has been infected.

2 Duration

3 hours

3 Additional Topics

Types of viruses and Anti-virus software systems.

4 Objectives

To educate and prepare students in the safe and secure use of computers. To learn how to recover from cyber attacks.

5 Standards Addressed

Demonstrate acute awareness of virus protection techniques.	**IT 1.18.8**
Install and update virus detection and protection software.	**IT 2.3.6**
Identify sources of virus infections and remove viruses.	**IT 2.3.7**

Indiana Department of Education. (n.d.). Indiana Standards and Resources: Business, Marketing, and Information Technology. Retrieved from http://dc.doe.in.gov/Standards/AcademicStandards/StandardSearch.aspx

6 Vocabulary

For a definition of virus, worm, Trojan Horse, anti-virus software and other terms related to this lesson, go to:
http://www.us-cert/reading room/virus.html

7 Materials

Materials from United States Computer Emergency Readiness Team (US-CERT) http://www.us-cert.gov/reading_room/virus.html
And from other additional resources listed in 8. below

8 Additional Resources

- http://www.us-cert.gov/reading_room/trojan-recovery.pdf
- http://www.us-cert.gov/cas/tips/ST04-005.html
- http://www.us-cert.gov/cas/tips/ST04-003.html
- http://www.staysafeonline.org/content/viruses
- http://www.staysafeonline.org/content/online-threats
- http://www.staysafeonline.org/content/core-protections
- http://www.staysafeonline.org/content/anti-virus-software-and-anti-spyware-software

9 Procedures & Methods

Lecture, Discussion and hands-on review of websites.

A. Introduction

The teacher gives an overview of viruses and introduces the terminology. Use the materials listed in Sections 7 and 8 above.

B. Development

Lesson 1: Introduction to viruses and related concepts. The following topics:

- What is a virus?
- What do viruses do?
- What is a worm?
- What is a Trojan Horse?
- Can I get a virus by reading my email messages?
- How can I avoid a virus infection from email?
- What are some tips to avoid viruses and lessen their impact?

are covered at the following site: http://www.us-cert.gov/reading_room/virus.html

Lesson 2: Steps to take if a computer is infected. For a discussion of this topic, go to:

http://www.us-cert.gov/reading_room/trojan-recover.pdf

Lesson 3: Good Security Habits. Cover and discuss the following material, which can be found at:

http://www.us-cert.gov/cas/tips/ST04-003.html

- How can you minimize the access other people have to your information?

    1. Lock your computer when you are away from it.

    2. Disconnect your computer from the Internet when you arn't using it.

    3. Evaluate your security settings

- What other steps can you take?

    1. Protect your computer against power surges and brief outages.

    2. Back up all of your data.

C. Practice

The instructor works with the students as a team to discuss information from the material above. Students are asked to relate their personal experiences in computer security.

D. IndependentPractice

Each student reviews the contents of Lessons 1-3 and selects a concept (such as virus or Trojan horse). The student then reviews the web sites in 8. above and/or other websites and researches the history and current status of the selected topic.

E. Accommodations (Differentiated Instruction)

For students who have difficulty with comprehension issues, a graphic organizer such as a Venn diagram or a compare/ contrast chart may be used Students who have visual, mobile or hearing impairments may need adaptive computer software to assist with using the computer and accessing the websites for information. Students who need extra scaffolding may need a graphic organizer to use in understanding the information and to provide a more concrete way to complete the Practice portion of the lesson. High ability/gifted students may want to go further in depth in any of the topics.

F. Checking for Understanding

The student discusses his/her research done in D. above with the instructor and prepares a two page draft report on this research. The student then prepares a two-page report based on the research and discussion and submits the report to the instructor.

G. Closure

Almost all careers and jobs that involve the use of computers and applications such as office productivity software, email, and use of internet browsers require knowledge of viruses and other malware. In particular this is required knowledge for careers involving software and hardware management. These careers include software engineers, computer engineers, web developers, network and system administrators, programmers, and software testers.

For more details, students should visit the following web sites:

http://www.edu.com/articles/careers-in-cyber-security/

http://www.dhs.gov/xabout/careers/gc_1240512546017.shtm

10 Evaluation

The teacher reviews the report submitted in F. above and evaluates it to give a grade between A-F.

11 Teacher Relection

The teacher will complete this section after teaching the lesson.

12 Media & Resources

- http://www.us-cert.gov/reading_room/virus.html
- http://www.us-cert.gov/reading_room/trojan-recovery.pdf

- http://www.us-cert.gov/cas/tips/ST04-005.html
- http://www.us-cert.gov/cas/tips/ST04-003.html
- http://www.staysafeonline.org/content/viruses
- http://www.staysafeonline.org/content/online-threats
- http://www.staysafeonline.org/content/core-protections
- http://www.staysafeonline.org/content/anti-virus-software-and-anti-spyware-software
- http://www.edu.com/articles/careers-in-cyber-security/
- http://www.dhs.gov/xabout/careers/gc_1240512546017.shtm